

1 398 011

- (21) Application No. 26376/72 (22) Filed 6 June 1972 (19)  
 (23) Complete Specification filed 26 July 1973  
 (44) Complete Specification published 18 June 1975  
 (51) INT. CL.<sup>3</sup> A61L 15/06 B32B 23/10 C08L 11/00 7/00



(52) Index at acceptance

A5R 83U

B5N 0526 0714 2504 2510 2512 2516 2706 2712 2732

C3P- 2C11 2C13C 2C17 2C18 2C3 2C8B 2H8 2HY 2R2

2T1H E2

C3Q C11 C3 C8B D1X T1H T2A

(72) Inventor GRAHAM LEIGHTON DAVIES

#### (54) IMPROVEMENTS IN OR RELATING TO SURGICAL DRESSINGS

(71) We, BTR INDUSTRIES LIMITED, a British Company, of Silvertown House, Vincent Square, London, S.W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to surgical or wound dressings, and provides a surgical or wound dressing of the kind comprising a backing strip one side of which has an adhesive facing an absorbent pad on said one side of the backing strip, in which dressing there is a film of elastomeric material of a synthetic or natural rubber, the film overlying the pad and being perforated to allow exudate from a wound to which the dressing is applied to be absorbed by the pad.

Said natural or synthetic rubber may be compounded with other ingredients.

An advantage found unexpectedly of using a dressing according to the invention is that the film of natural or synthetic rubber has the property of conforming to the shape of the wound while at the same time the dried exudate which forms a scab over the wound does not adhere to the film.

The thickness of the film of elastomeric material is preferably not greater than 0.010 inch and is preferably in the range 0.0005 to 0.003 inch.

The edges of the film may extend beyond the absorbent pad and adhere to the adhesive facing to hold the film in position over the pad.

In some embodiments of the invention, the film may be made of gutta percha or gutta percha compounded with other elastomers and/or fillers.

In other embodiments of the invention the film may be made of polychloroprene or polychloroprene compounded with other elastomers and/or fillers.

In further embodiments of the invention

the film may be made of trans-polyisoprene or trans-polyisoprene compounded with other elastomers and/or fillers.

In yet further embodiments of the invention, the natural or synthetic rubber in the film may be compounded with plastics polymers. In such embodiments, the plastics polymer may be polyethylene. Preferably, the polyethylene is compounded with low molecular weight polymers of polyisobutylene.

In any of the above arrangements the film may include additives which promote healing of a wound, for example bactericides and bacteriostats.

The diameter of each perforation is preferably substantially 0.5 mm., and there are preferably substantially 100 perforations per square centimetre.

The following is a description of specific embodiments of the invention, given by way of example, reference being made to the accompanying drawing and which shows a partly opened surgical or wound dressing.

The surgical or wound dressing comprises a backing strip 10 having an adhesive facing 11 provided on one side thereof. The strip 10 is preferably of a plastics material having ventilation pores provided therethrough, although the strip 10 may be a woven fabric, or a film of plastics material having no ventilation pores. The facing 11 comprises a rubber-based pressure-sensitive adhesive material applied to the backing strip to define a network of adhesive bands.

An absorbent lint pad 12 is provided on said one side of the strip 10, the pad being attached to the strip by means of the adhesive facing 11. The pad preferably comprises a wad of lint, but may comprise a wad of other absorbent material, such as cotton wool, contained in a lint or gauze envelope.

A film 13 of gutta percha tissue overlies the absorbent pad 12, the film having a

plurality of small perforations provided therein. A preferred diameter for each perforation is 0.5 mm., there being 100 perforations per square cm. The thickness of the film 13 is not greater than 0.010 inch, and preferably in the range 0.0005 to 0.003 inch, to allow the film to conform to the outer surface contour of the wound. The film 13 is slightly larger than the pad 12 the edge margins of the film 13 extending beyond the pad and adhering to the adhesive facing 11.

The one side of the dressing is covered with two protective leaves, 14, 15, of a plastics material which peels easily from the adhesive facing 11. The central portions of the two leaves overlap one another to provide a tab on one leaf by which the leaf may be gripped to assist removal from the dressing.

In use, the dressing is applied in the usual way for known dressings to a wound. The

perforations in the gutta percha film allow the exudate from the wound to be absorbed by the pad 12. However, as the exudate dries and a scab is formed on the wound, the gutta percha film separates the pad from the scab and prevents the pad from adhering to the scab. In addition, it is found that the gutta percha film itself has particularly advantageous non-stick properties, and the film itself tends not to adhere to the wound, either before the wound has dried, or to a scab which has formed over the wound.

The gutta percha material of film 13 may be compounded with other elastomeric materials, e.g. natural rubber, polychloroprene, styrene butadiene rubbers, butadiene acrylonitrile rubber, butyl rubbers, and/or purified fillers, e.g. calcium carbonate and silicate, to give body to the tissue. The following is an example of a batch of a suitable gutta percha compound from which the film 13 can be made.

45	"A" GUTTA (No 1 PAHANG) WASHED	...	...	5.500 Kilograms
	FINE BLOCK BALATA (MANAOS) WASHED	...	...	7.500 Kgs.
	RUBBER — SMR 5 C.V.	...	...	9.000 Kgs.
	PARAFFIN WAX 140/145° M.P.	...	...	11.000 Kgs.
	FRENCH CHALK	...	...	14.500 Kgs.
50	SULPHUR M C	...	...	0.300 Kgs.
				<hr/> 47.800 Kgs. <hr/>

Another preferred elastomeric material for the film 13 is polychloroprene which can also be compounded with other elastomers

and/or fillers. The following is an example of a batch of suitable polychloroprene compound from which the film 13 can be made.

60	NEOPRENE (Registered Trade Mark)	AD 20	...	...	5.000 Kgs.
	NEOPRENE	H.C.	...	...	5.000 Kgs.
	NEOPRENE	F.C.	...	...	1.000 Kgs.
	RUBBER SMR5 C.V.	...	...	...	8.000 Kgs.
	PARAFFIN WAX 140/145° M.P.	...	...	...	10.000 Kgs.
65	FRENCH CHALK	...	...	...	15.000 Kgs.
	STEARIC ACID	...	...	...	0.250 Kgs.
	NONOX EXP	...	...	...	0.500 Kgs.
	TRI-XYLYL PHOSPHATE	...	...	...	1.000 Kgs.

In each of the above two examples, the finished tissue is sterilised by subjecting it to gamma rays.

The film 13 may be made of a synthetic gutta percha material, known as "trans-pip", which is essentially trans-polyisoprene, and may be compounded with other elastomers and/or fillers.

It is also possible to make the film 13 from plastics polymers which are compounded with elastomers to make them elastomeric in character. An example is low density polyethylene compounded with natural rubber, polyisoprene and other synthetic rubbers. Low molecular weight polyisobutylenes are particularly suitable for giving polyethylene an elastomeric quality.

One further advantage of using Gutta-Percha film and materials of a rubber-like nature is the low-processing temperatures used, both in compounding and film preparation. This enables other additives to be used in the film to promote healing. As examples of materials which may be incorporated are hexachlorophene sulphamerazine and other sulphonamides, penicillins and tetracyclines.

A particular advantage of using a dressing according to the invention is that the elastomeric film 13 readily conforms to a wide variety of shapes likely to arise in a wound condition. This gives appreciably enhanced healing rates of wounds to which such a dressing is applied.

## WHAT WE CLAIM IS:—

1. A surgical or wound dressing of the kind comprising a backing strip one side of which has an adhesive facing and an absorbent pad on said one side of the backing strip, in which dressing there is a film of elastomeric material of a synthetic or natural rubber, the film overlying the pad and being perforated to allow exudate from a wound to which the dressing is applied to be absorbed by the pad.
2. A dressing as claimed in claim 1 wherein said synthetic or natural rubber is compounded with other ingredients.
3. A dressing as claimed in claim 1 or claim 2 wherein the thickness of the film of elastomeric material is not greater than 0.010 inch.
4. A dressing as claimed in claim 3 wherein the thickness of the film is in the range 0.0005 to 0.003 inch.
5. A dressing as claimed in any of claims 1 to 4 wherein the edges of the film extend beyond the absorbent pad and adhere to the adhesive facing to hold the film in position over the pad.
6. A dressing as claimed in any one of claims 1 to 5 wherein the film is made of gutta percha.
7. A dressing as claimed in claim 6 wherein the gutta percha is compounded with other elastomers.
8. A dressing as claimed in claim 6 or claim 7 wherein the gutta percha is compounded with fillers.
9. A dressing as claimed in any of claims 1 to 5 wherein the film is made of polychloroprene.
10. A dressing as claimed in claim 9 wherein the polychloroprene is compounded with other elastomers.
11. A dressing as claimed in claim 9 or claim 10 wherein the polychloroprene is compounded with fillers.
12. A dressing as claimed in any of claims 1 to 5 wherein the film is made of trans-polyisoprene.
13. A dressing as claimed in claim 12 wherein the trans-polyisoprene is compounded with other elastomers.
14. A dressing as claimed in claim 12 or claim 13 wherein the trans-polyisoprene is compounded with fillers.
15. A dressing as claimed in any of claims 1 to 5 wherein the natural or synthetic rubber in the film is compounded with plastics polymers.
16. A dressing as claimed in claim 15 wherein the plastics polymer is polyethylene.
17. A dressing as claimed in claim 16 wherein the polyethylene is compounded with low molecular weight polymers of polyisobutylene.
18. A dressing as claimed in any of the preceding claims wherein the film includes additives which promote healing of a wound, for example bacteriocides and bacteriostats.
19. A dressing as claimed in any of claims 1 to 18 wherein the diameter of each perforation in the film is substantially 0.5 mm. and there are substantially 100 perforations per square centimetre.
20. A surgical or wound dressing substantially as hereinbefore described with reference to and as shown in the accompanying drawing.

BOULT, WADE & TENNANT,  
Chartered Patent Agents,  
34 Cursitor Street,  
London, EC4A 1PQ.

1398011

COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of  
the Original on a reduced scale*

